

**Notice of Allowability**

Application No.

10/789,508

Examiner

ANDREY BELOUSOV

Applicant(s)

PARK ET AL.

Art Unit

2174

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/19/2009.
2. ☒ The allowed claim(s) is/are 16,17,19-21,23 and 24.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 5/15/2009, 8/6/2009
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 8/11/2009.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_.

/Steven P Sax/  
Primary Examiner, Art Unit 2174

***Examiner's Amendment***

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Dohyun Ahn on 8/11/2009.

16. (Currently amended) An interactive seamer apparatus for seaming two or more single view images vertically or horizontally into a panoramic image, comprising:

a user interface comprising:

a first display area configured to display:

a panoramic image generated from the two or more single view images having overlapping portions, each pixel in the overlapping portions encompassed by an outlined area having an opacity value that is determined by the location of the pixel in the outlined area and a predetermined opacity curve;

an array of two or more control points superimposed within an area in the panoramic image corresponding to an interior of a selected single view image for manually warping parts of the panoramic image corresponding to the selected single view image by moving the control points, the interior of the selected single view image excluding four corners of the selected single view image; and

the a second display area configured to display a selected single view image projected from the panoramic image, opacity values of pixels in the overlapping portions manually adjusted by changing a size of an outlined area of the selected single view image in the second display area; and

a third display area configured to display values of parameters; and

a fourth display area configured to display a perspectively corrected view of the selected single view image, the fourth display displayed simultaneously with the first display area; and

an image seamer configured to seam the two or more single view images vertically or horizontally based on locations of the control points and the size of the outlined area in the second display area.

17. (Previously presented) The interactive seamer of claim 16, wherein the image seamer is further configured to seam the two or more single view images based on the focal length of a selected portion of the panoramic image.

18. (Canceled)

19. (Currently amended) The interactive seamer of claim [[18]] 16, wherein the parameters comprise at least one parameter associated with high resolution zoom to enable a user to examine artifacts without requiring a high resolution representation of the entire panoramic image.

20. (Currently amended) The interactive seamer of claim [[18]] 16, wherein the parameters comprise at least one parameter specifying an artificial horizon in the panoramic image.

21. (Currently amended) The interactive seamer of claim 16, wherein the parameters comprise at least one parameter specifying a lay down order of the two or more single view images.

22. (Canceled)

23. (Previously presented) The interactive seamer of claim 16, wherein the warped single view image is repositioned within the panoramic image responsive to receiving a user input.

24. (Currently amended) A computer-implemented method of interactively seaming single view images vertically or horizontally in a partly overlapping manner into a panoramic image, comprising:

- displaying a panoramic image generated from the two or more single view images in a first display area of a user interface;

- displaying at least one of two or more single view images projected from the panoramic image in a second display area of the user interface, the two or more single view images having overlapping portions at least partially encompassed by at least one outlined area, each pixel in the overlapping portions encompassed by the outlined area having an opacity value that is determined by the location of the pixel in the outlined area and a predetermined opacity curve;

- changing the opacity values of the pixels in the overlapping portions responsive to receiving first user inputs representing changing of a size of an outlined area in the second display area;

- superimposing an array of two or more control points within an area in the panoramic image corresponding to an interior of a selected single view

image, the interior of the selected single view image excluding four corners of the selected single view image;

warping parts of the panoramic image corresponding to the selected single view image responsive to receiving second user inputs for moving the control points;

displaying values of parameters;

displaying a perspectively corrected view of the selected single view image, the perspectively corrected view displayed simultaneously with the panoramic image;

seaming the two or more single view images vertically or horizontally in a partly overlapping manner into the panoramic image based on locations of the control points and the size of the outlined area in the second display area;

and

storing the panoramic image.

### ***Reasons for Allowance***

1. Amendment to include the limitations from the cancelled claims 18 and 22 into Independent claims of 16 and 24 specifies an apparatus and a method, which now further require:
  - a. *a third display area configured to display values of parameters; and*
  - b. *a fourth display area configured to display a perspectively corrected view of the selected single view image, the fourth display displayed simultaneously with the first display area; and*

The amendment of independent claims 16 (apparatus) and 24 (method) combines the above recited limitations, along with the features already present in the claims.

2. The combined features, both amended and already present, overcome the cited references of Cok, Teo, Cleary and Isobe, and are not found in the art. Accordingly, each of the dependent claims are allowable by virtue of their dependency upon independent claims 16 and 24.

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Belousov whose telephone number is (571) 270-1695. The examiner can normally be reached on Mon-Fri (alternate Fri off) EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dennis Chow can be reached on (571) 272-7767. The fax phone number for the organization where this application or proceeding is assigned is 571-273-3800.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P Sax/

Primary Examiner, Art Unit 2174

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8/15/2009